

Date: Monday, 15/12/2008 9:58:32 AM  
 User: Julie Dawson

## Process Sheet

|  |  |
|--|--|
| <b>Customer</b> : CU-DAR001 Dart Helicopters Services            | <b>Drawing Name</b> : MID TUBE ASSEMBLY                    |
| <b>Job Number</b> : 44071  |  |
| <b>Estimate Number</b> : 10469                                   |  |
| <b>P.O. Number</b> :   | <b>Part Number</b> : D3391023                              |
| <b>This Issue</b> : 15/12/2008 <b>S.O. No.</b> :                 | <b>Drawing Number</b> : D3391 REV H                        |
| <b>Prsht Rev.</b> : NC   | <b>Project Number</b> : N/A                                |
| <b>First Issue</b> : / / <b>Type</b> : SKIDTUBES                 | <b>Drawing Revision</b> : H                                |
| <b>Previous Run</b> : 44042                                      | <b>Material</b> :  |
| <b>Written By</b> :  | <b>Due Date</b> : 19/12/2008 <b>Qty:</b> 1 <b>Um:</b> Each |
| <b>Checked &amp; Approved By</b> : <u>JUL 08.12.15</u>           |  |
| <b>Comment</b> :   |  |
| Est. A 05.10.20 New Issue KJ/EC                                  |  |
| Est. B 06.02.10 ECN773 dwg rev.D EC                              |  |
| est C 07.03.20 rev F dwg EC                                      |  |
| est D 07.03.28 re-format EC                                      |  |
| est E 07.10.31 ecn 1053P EC                                      |  |
| Est Rev:F ECN 1056 07-11-13 DD verified by: EC                   |  |
| Est Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC    |  |
| Est Rev:H 08-09-10 revH as per dwg DD verified by:EC             |  |
| Est Rev: I 08-11-13 Removed steps per w/o, QC KJ verified by: ec |  |

## Additional Product

Job Number:



| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|
|---------|-----------------------|---------------|

|     |           |                    |
|-----|-----------|--------------------|
| 1.0 | D2500-100 | Skidtube Extrusion |
|-----|-----------|--------------------|



**Comment:** Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

SKIDTUBE EXTRUSION

Pick:

Qty Part Number Description

Batch

1 D2500-1-100 Extrusion

31065 J

SL8-12-16

|     |          |                   |
|-----|----------|-------------------|
| 2.0 | D3391023 | Fwd Tube Assembly |
|-----|----------|-------------------|



**Comment:** Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Fwd Tube Assembly

Batch: 24091

Q 10 2318

|     |             |                       |
|-----|-------------|-----------------------|
| 3.0 | SKIDTUBES 1 | SKIDTUBESS RESOURCE 1 |
|-----|-------------|-----------------------|



**Comment:** LANDING GEAR RESOURCE 1

1-Cut tube to finish length as per Dwg D3391

2-Identify as D3391-023

3-Drill pilot holes using DT8796 (Do not drill "B" holes) and drill only 1 fwd saddle hole on one side only as

SL8-12-16

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

Date: Monday, 15/12/2008 9:58:32 AM  
User: Julie Dawson

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 44071

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

per Dwg D3391

4-Open saddles and GHW holes to Ø0.375" except for fwd saddle hole of detail "J"

5-Remove .030" from Fwd indexing Ridge as per Dwg D3391

6-Remove indexing ridge on Fwd & Aft end of skidtube as per Dwg D3391

7-Deburr

8-Drill #30 pilot holes using wearplate Jig DT8217 Identify Ø0.250" holes with paint marker,

9-Open wearplate holes of D3391-023 assembly detail section G-G to Ø0.250" (14 holes) as per Dwg D3391 and 2 holes in section Detail "J", do not open wearplate holes of section "J"

10-Open wearplate holes of D3391-023 assembly detail section H-H to Ø0.297" (20 holes) as per Dwg D3391

11-Open .375" holes to .438" \*\*\*do not open fwd saddle holes\*\*\*

12-Locate D3391-021 in D3391-023 at 9.00" (see view z-z)

13- Transfer drill one fwd saddle hole only to .188" dia, transfer drill all remaining fwd saddle holes using DT 8149 locating from previously drill .188" dia hole, using t-pins and clicos to ensure perfect allingment, open up previously tranfer drilled pilot holes in D3391-023/-021 to 0.438" dia. in D3391-021

14- Transfer drill 2 wearplate holes into D3391-021 using DT8217, locating from two previously drilled holes, drill remaining wearplate holes into D3391-021.

15- Locating from two fwd wearplate holes drillol remaining 6 wearplte holes in D3391-021 using DT8937

16- Open 2 fwd wearplate holes in D3391-023 to .250" dia.

17- counterbore two aft wearplate holes in D3391-021 as per dwg

18- Open 12 wearplate holes in D3391-021 to 0.297" dia.

19-Deburr and blow out all chips from inside tube

4.0

QCS

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

28/03/15 (initials)

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR:   |          | WORK ORDER NON-CONFORMANCE (NCR)   |                                |                                 |                |                           |                       |                          |
|--------|----------|--|--------------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE   | STEP     | Description of NC<br>Section A   | Corrective Action<br>Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|        |          |  | Initial<br>Chief Eng           | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
| 9/3/16 | #<br>4.0 | During inspection found<br>that the wear plate holes<br>are old time.<br>R.C. employee didn't install<br>drill bits correctly.<br>u/AS |                                |                                 |                |                           |                       |                          |
|        |          |  |                                |                                 |                |                           |                       |                          |
|        |          |  |                                |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

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## Process Sheet

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Drawing Name: MID TUBE ASSEMBLY

Job Number: 44071

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

① M 9-3-19

6.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

BE 9-03-19

7.0

D33891

Web



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

WEB

Pick:

Qty

Part Number

Description

Batch

1

D3389-1

Web

B-46260

A/R

Sikaflex-241/-291

M 109 883

Sikaflex expire date:

9-7-11

ANN 9-3-19

Start: 9-3-19 Time: 10:30

Finish: Time:

8.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open float bag holes as per dwg

2-C'sink float bag holes as per dwg

3- Prepare tube for welding

4-Bond web in place as per Dwg D3391 & QSI 015.

Adhere for 12 hours)

M 9-3-19

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

509/03/23 @

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

NOTE: Date & initial all entries

Date: Monday, 15/12/2008 9:58:33 AM  
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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 44071

Part Number: D3391023

Job Number:



Seq. #: Machine Or Operation: Description :

10.0 D36811 Spacer



Comment: Qty.: 5.0000 Each(s)/Unit Total : 5.0000 Each(s)

SPACER

batch:

BH4177 BE 09/03/23

11.0 SKIDTUBES 1 SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Weld crossbolt spacer as per dwg D3391 & QSI 004

2-grind weld flush

BE 09/03/23

12.0 QC10 VISUAL INSPECTION OF GROUND WELDS



Comment: VISUAL INSPECTION OF GROUND WELDS

S 09/03/24 (F)

13.0 QC5 INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 09/03/24 (F)

14.0 POWDER COATING POWDER COATING



Comment: POWDER COATING

Pressure wash 04-04-06 x 14  
Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

M110939

START TIME:

7:45

OVEN TEMPERATURE:

320°

FINISH TIME:

8:15

BR 09-04-2

(F)

15.0 QC3 INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

09-04-06

(F)

16.0 D35911 Bushing



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Bushing

B43172

X 91

09-04-06

(F)

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                                |                                 |                |                           |                       |                          |
|------|------|----------------------------------|--------------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action<br>Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng           | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries





| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                                |                                 |                |                           |                       |                          |
|------|------|----------------------------------|--------------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action<br>Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng           | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

Date: Monday, 15/12/2008 9:58:33 AM  
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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 44071

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

22.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: *PPD*

*46601*

*P-9/4/19 C*

23.0

QC21

FINAL INSPECTION/W/O RELEASE



*09/04/13 JA*

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



*mf 09-04-09*

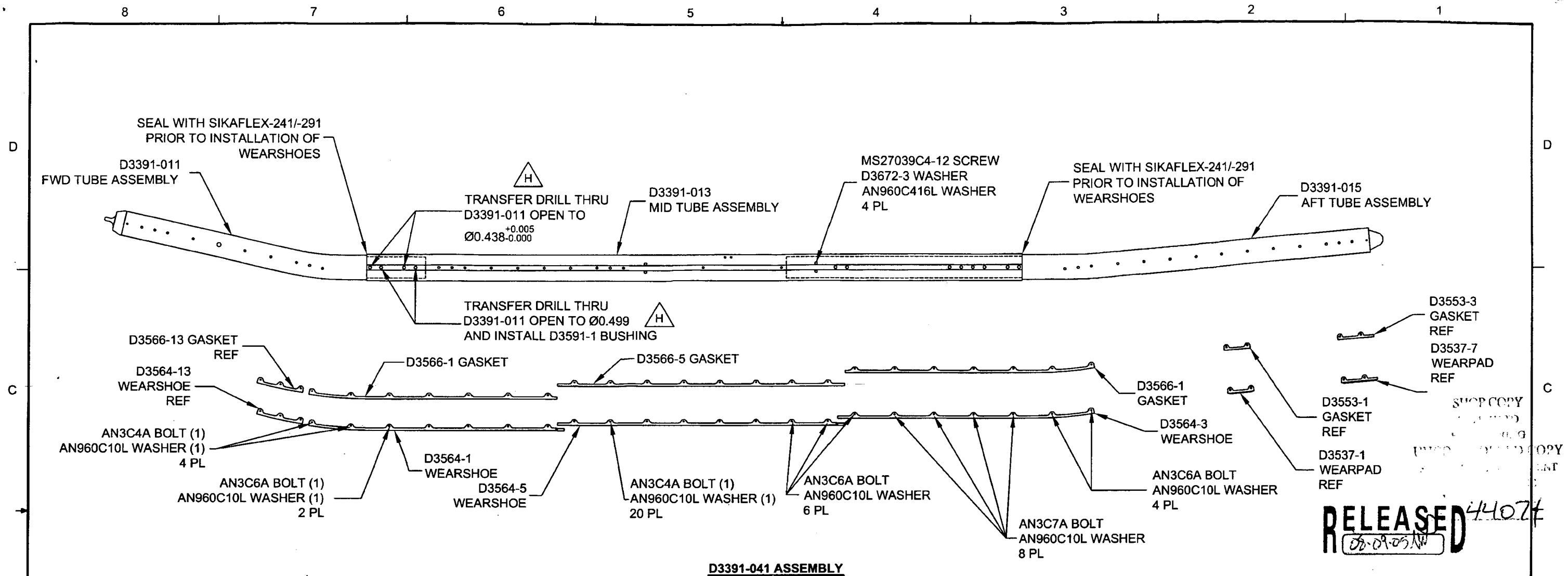
| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                                |                                 |                |                           |                       |                          |
|------|------|----------------------------------|--------------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action<br>Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng           | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |
|      |      |                                  |                                |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



B

A

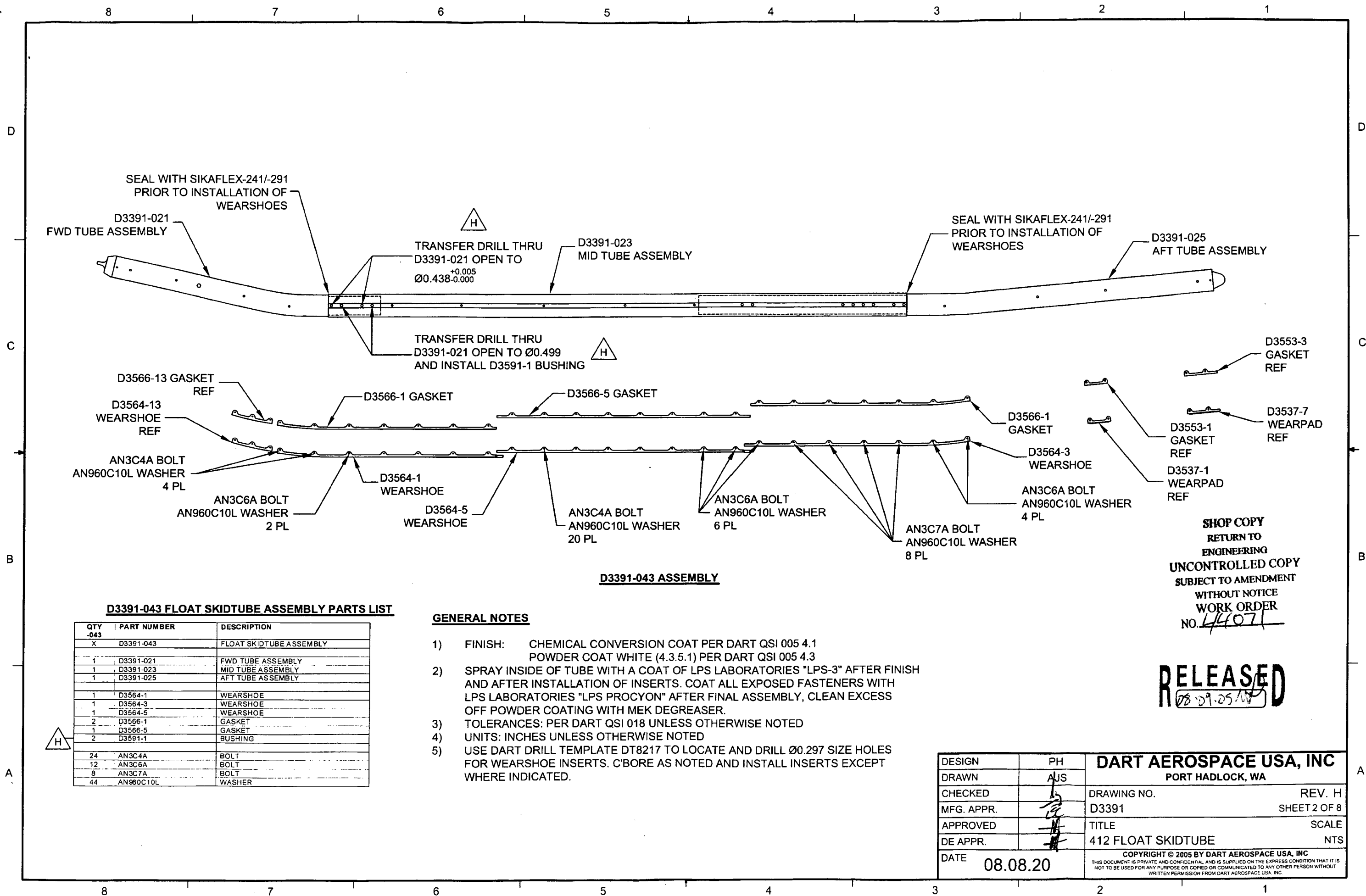
# **D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST**

| QTY | PART NUMBER  | DESCRIPTION             |
|-----|--------------|-------------------------|
| X   | D3391-041    | FLOAT SKIDTUBE ASSEMBLY |
| 1   | D3391-011    | FWD TUBE ASSEMBLY       |
| 1   | D3391-013    | MID TUBE ASSEMBLY       |
| 1   | D3391-015    | AFT TUBE ASSEMBLY       |
| 1   | D3564-1      | WEARSHOE                |
| 1   | D3564-3      | WEARSHOE                |
| 1   | D3564-5      | WEARSHOE                |
| 2   | D3566-1      | GASKET                  |
| 1   | D3566-5      | GASKET                  |
| 2   | D3591-1      | BUSHING                 |
| 4   | D3672-3      | WASHER                  |
| 24  | AN3C4A       | BOLT                    |
| 12  | AN3C6A       | BOLT                    |
| 8   | AN3C7A       | BOLT                    |
| 44  | AN960C10L    | WASHER                  |
| 4   | MS27039C4-12 | SCREW                   |
| 4   | AN960C416L   | WASHER                  |

## **GENERAL NOTES**

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH  
AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH  
LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS  
OFF POWDER COATING WITH MEK DEGREASER.  
TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED  
UNITS: INCHES UNLESS OTHERWISE NOTED
- 3) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES  
FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT  
WHERE INDICATED.

| H          | DRAWING UPDATED TO CURRENT STANDARDS.<br>SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM<br>WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING.<br>SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM<br>WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING.<br>(FOR FURTHER INFO SEE DSI 9364 & NCR 08-074) | AJS  | 08.08.20     |
|------------|---|--|--------------|
| G          | REPLACE NAS INSERTS W/ AELS INSERTS<br>SWITCH TO D3670-XXXX SPACERS FOR INSTALLING<br>FLOAT BAGS, DWG REORGANIZED FOR CLARITY   | DC   | 07.07.31     |
| F          | ADD SS WEARSHOE, GASKET<br>REMOVE FWD SADDLE HOLE -011/-021   | PH   | 07.01.18     |
| E          | CHANGE TOLERANCE, EASE MANUFACTURE  | PH   | 06.04.25     |
| D          | UPDATE TOLERANCE, CHANGE HOLE SIZE  | PH   | 06.01.23     |
| C          | LENGTHEN AFT EXTENSION  | PH   | 05.09.27     |
| B          | DRAWING UPDATES   | PH   | 05.06.10     |
| A          | NEW ISSUE   | PH   | 05.02.07     |
| REV.       | DESCRIPTION   | BY   | DATE         |
| DESIGN     | PH  | <b>DART AEROSPACE USA, INC</b><br>PORT HADLOCK, WA   |              |
| DRAWN      | AJS   |  |              |
| CHECKED    |   | DRAWING NO.  | REV. H       |
| MFG. APPR. |   | D3391  | SHEET 1 OF 8 |
| APPROVED   |   | TITLE  | SCALE        |
| DE APPR.   |   | 412 FLOAT SKIDTUBE   | NTS          |
| DATE       | 08.08.20  | COPYRIGHT © 2005 BY DART AEROSPACE USA, INC<br>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS<br>NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT<br>WRITTEN PERMISSION FROM DART AEROSPACE USA, INC. |              |



D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

| QTY<br>-043 | PART NUMBER | DESCRIPTION             |
|-------------|-------------|-------------------------|
| X           | D3391-043   | FLOAT SKIDTUBE ASSEMBLY |
| 1           | D3391-021   | FWD TUBE ASSEMBLY       |
| 1           | D3391-023   | MID TUBE ASSEMBLY       |
| 1           | D3391-025   | AFT TUBE ASSEMBLY       |
| 1           | D3564-1     | WEARSHOE                |
| 1           | D3564-3     | WEARSHOE                |
| 1           | D3564-5     | WEARSHOE                |
| 2           | D3566-1     | GASKET                  |
| 1           | D3566-5     | GASKET                  |
| 2           | D3591-1     | BUSHING                 |
| 24          | AN3C4A      | BOLT                    |
| 12          | AN3C6A      | BOLT                    |
| 8           | AN3C7A      | BOLT                    |
| 44          | AN960C10L   | WASHER                  |

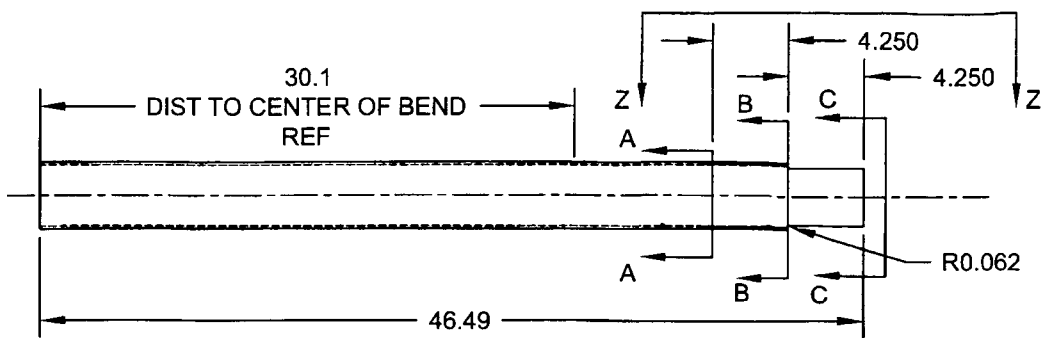
GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH  
AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH  
LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS  
OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES  
FOR WEARSHOE INSERTS. CBORE AS NOTED AND INSTALL INSERTS EXCEPT  
WHERE INDICATED.

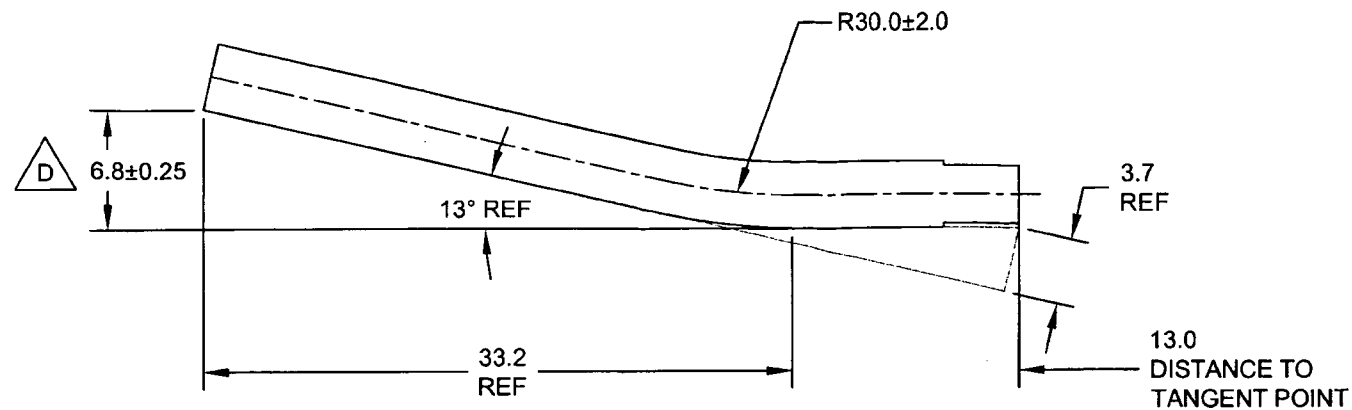
SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 44071

RELEASED  
08-09-25-10

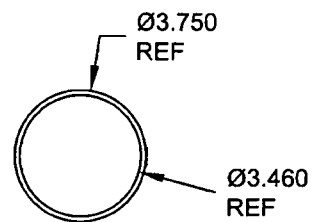
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|------------|----------|---|--------------|
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| MFG. APPR. |          | D3391   | SHEET 2 OF 8 |
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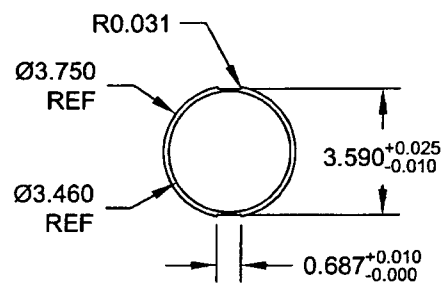
**D3391-1 CUTTING DETAIL**  
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



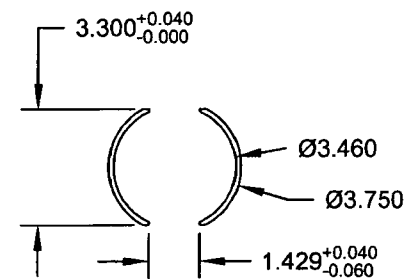
**D3391-011/-021 BENDING DETAIL**  
(MAKE FROM D3391-1)



**SECTION A-A**  
SCALE 2X

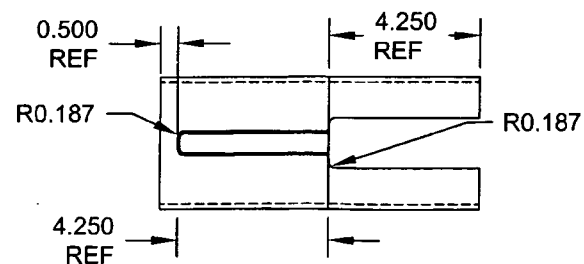


**SECTION B-B**  
SCALE 2X



**SECTION C-C**  
SCALE 2X

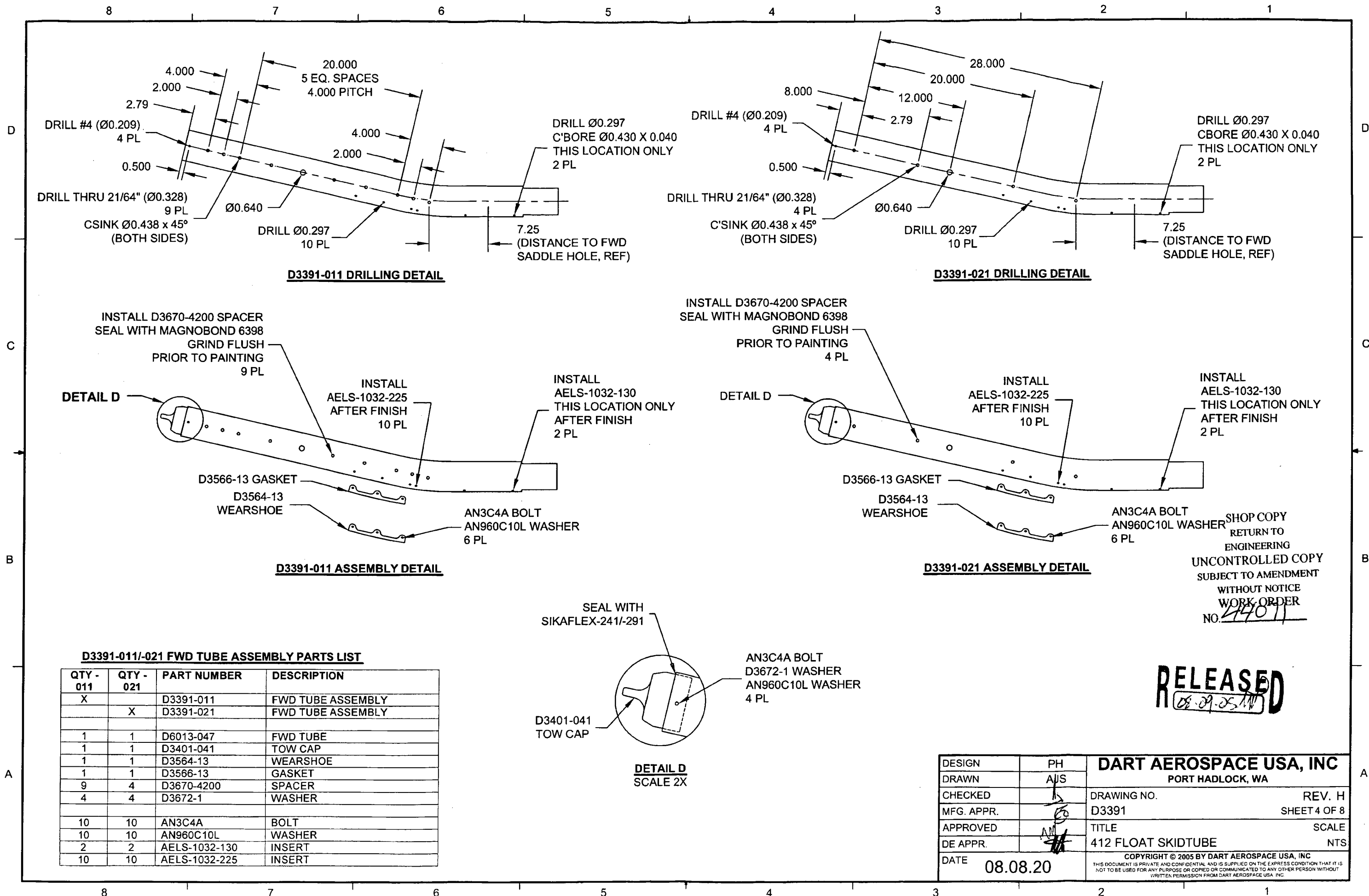
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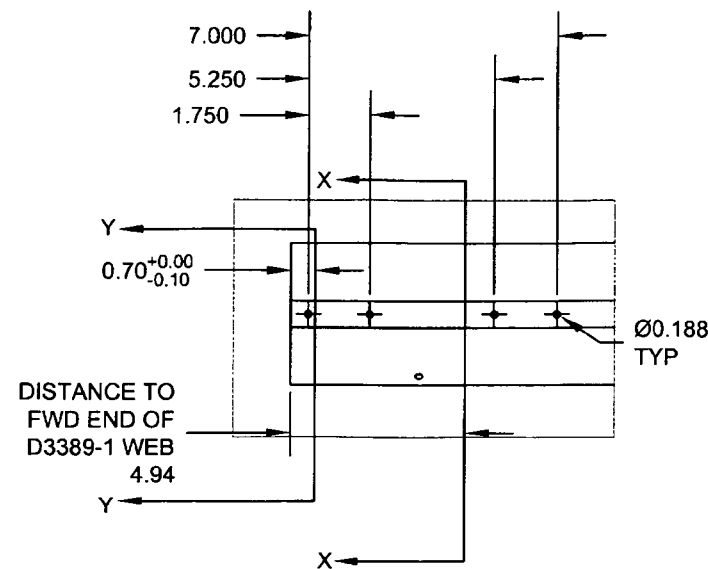
**VIEW Z-Z**  
SCALE 2X

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| MFG. APPR. |          | D3391   | SHEET 3 OF 8 |
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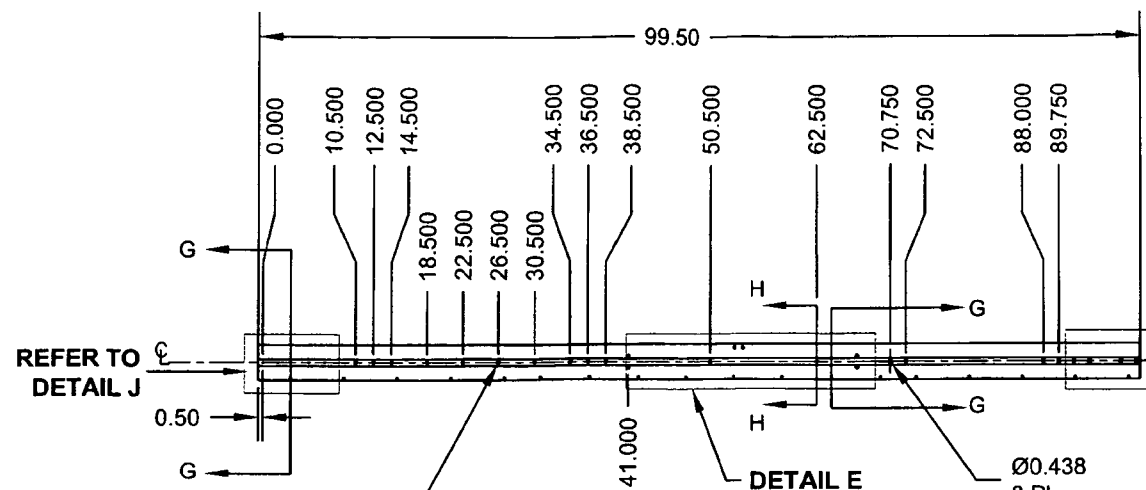






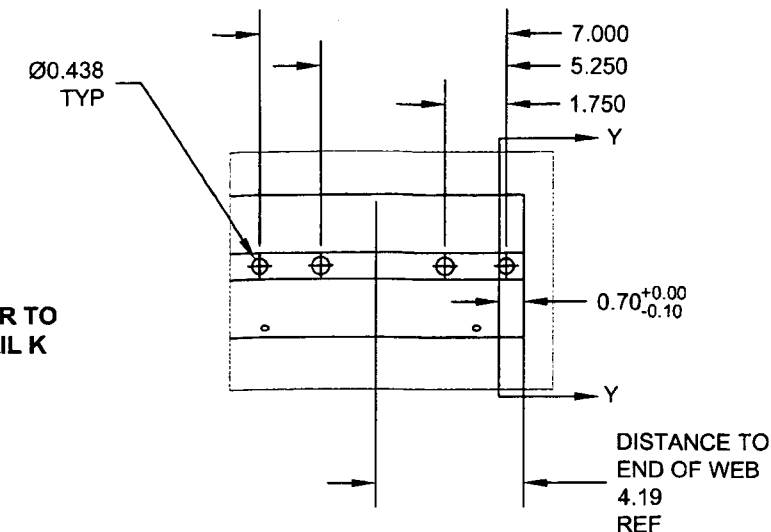
**DETAIL J**  
SCALE 4X

DRILL THRU 21/64" (Ø0.328)  
CSINK Ø0.438 X 45° (BOTH SIDES)  
12 PL

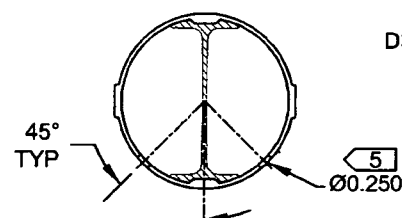


**D3391-013 ASSEMBLY DETAIL**

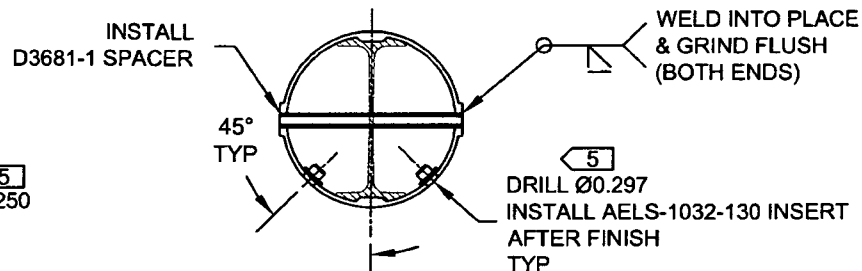
REFER TO  
DETAIL K



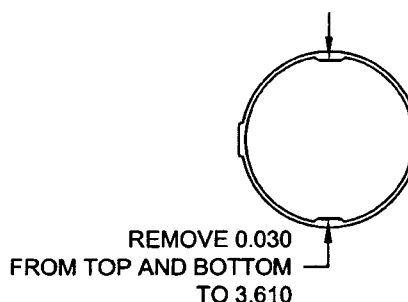
**DETAIL K**  
SCALE 4X



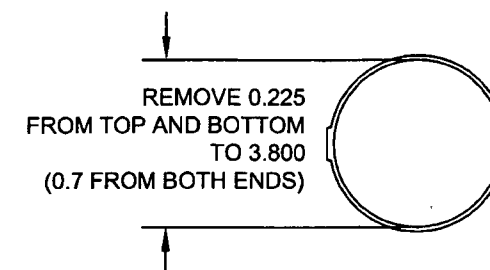
**SECTION G-G**  
SCALE 5X



**SECTION H-H**  
SCALE 5X

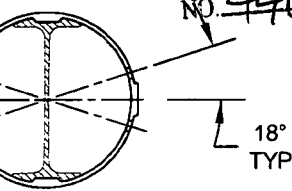


**SECTION X-X**  
SCALE 5X

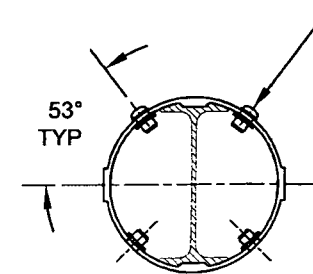


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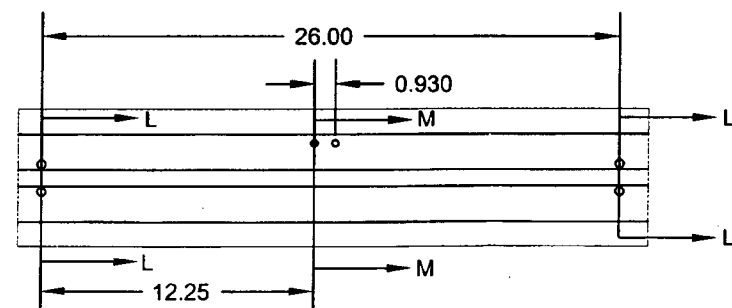
DRILL Ø0.297  
INSTALL AELS-1032-130 INSERT  
MS27039C1-09 SCREW  
D3672-1 WASHER  
AN960C10L WASHER  
AFTER FINISH  
4 PL



**SECTION LL-LL**  
SCALE 5X

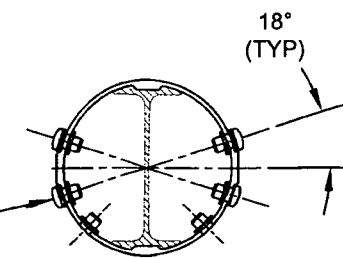


**SECTION M-M**  
SCALE 5X



**DETAIL E**  
SCALE NONE

DRILL Ø0.391  
INSTALL ALS4-428-165 INSERT  
MS27039C4-08 SCREW  
D3672-3 WASHER  
AN960C416L WASHER  
AFTER FINISH  
4 PL



**SECTION L-L**  
SCALE 5X

**D3391-013 MID TUBE ASSEMBLY PARTS LIST**

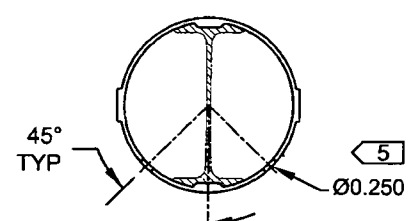
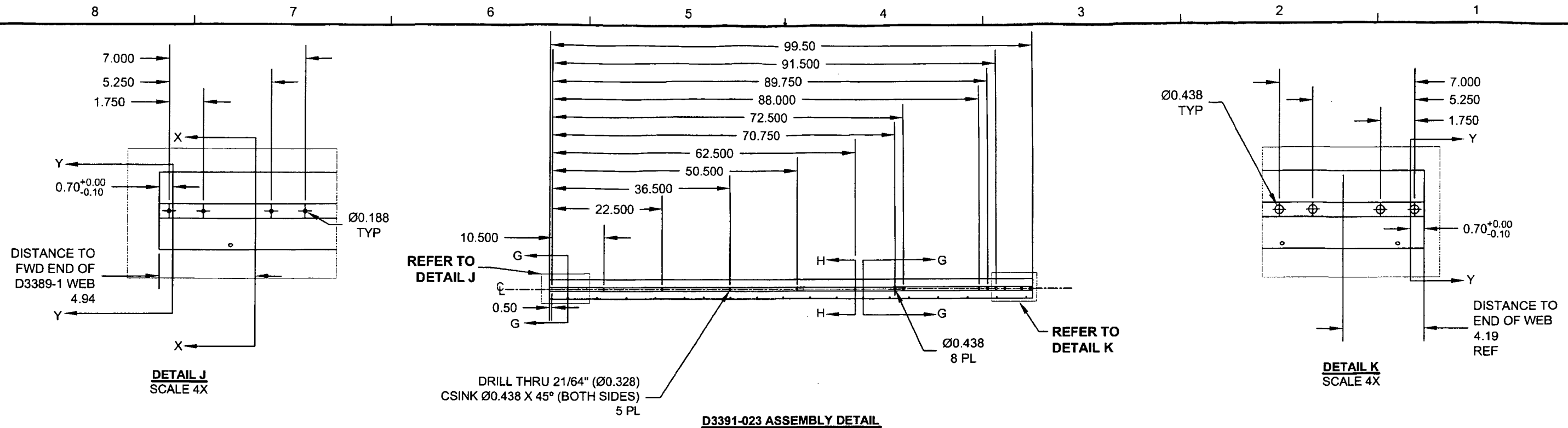
| QTY<br>-013 | PART NUMBER   | DESCRIPTION       |
|-------------|---------------|-------------------|
| X           | D3391-013     | MID TUBE ASSEMBLY |
| 1           | D2500-1-100   | EXTRUSION         |
| 1           | D3389-1       | WEB               |
| 4           | D3672-1       | WASHER            |
| 4           | D3672-3       | WASHER            |
| 12          | D3681-1       | SPACER            |
| 24          | AELS-1032-130 | INSERT            |
| 4           | ALS4-428-165  | INSERT            |
| 4           | AN960C10L     | WASHER            |
| 4           | AN960C416L    | WASHER            |
| 4           | MS27039C1-09  | SCREW             |
| 4           | MS27039C4-08  | SCREW             |

**D3391-013 MID TUBE ASSEMBLY**

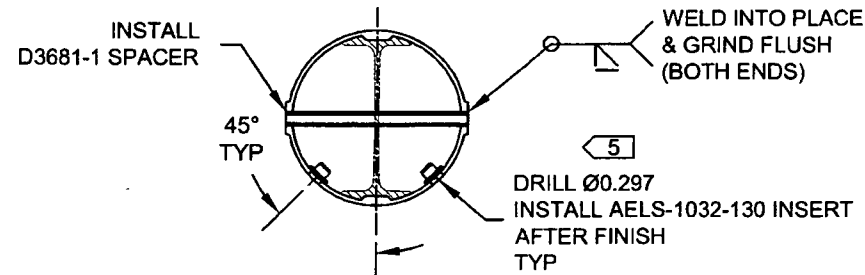
- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- 3) WELDING: PER DART QSI 004

|            |          |  |              |
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| MFG. APPR. |          | D3391  | SHEET 5 OF 8 |
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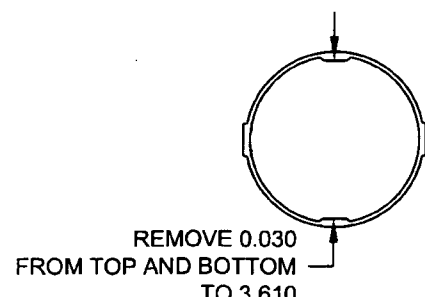
**RELEASED**



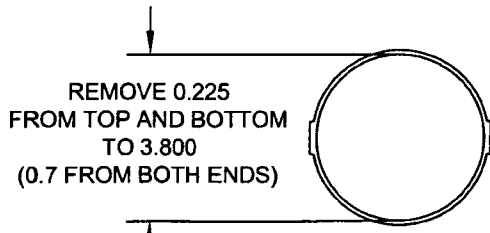
SECTION G-G  
SCALE 5X



SECTION H-H  
SCALE 5X



SECTION X-X  
SCALE 5X



SECTION Y-Y  
SCALE 5X

D3391-023 MID TUBE ASSEMBLY PARTS LIST





| QTY - 023 | PART NUMBER   | DESCRIPTION       |
|-----------|---------------|-------------------|
| X         | D3391-023     | MID TUBE ASSEMBLY |
| 1         | D2500-1-100   | EXTRUSION         |
| 1         | D3389-1       | WEB               |
| 5         | D3681-1       | SPACER            |
| 20        | AELS-1032-130 | INSERT            |

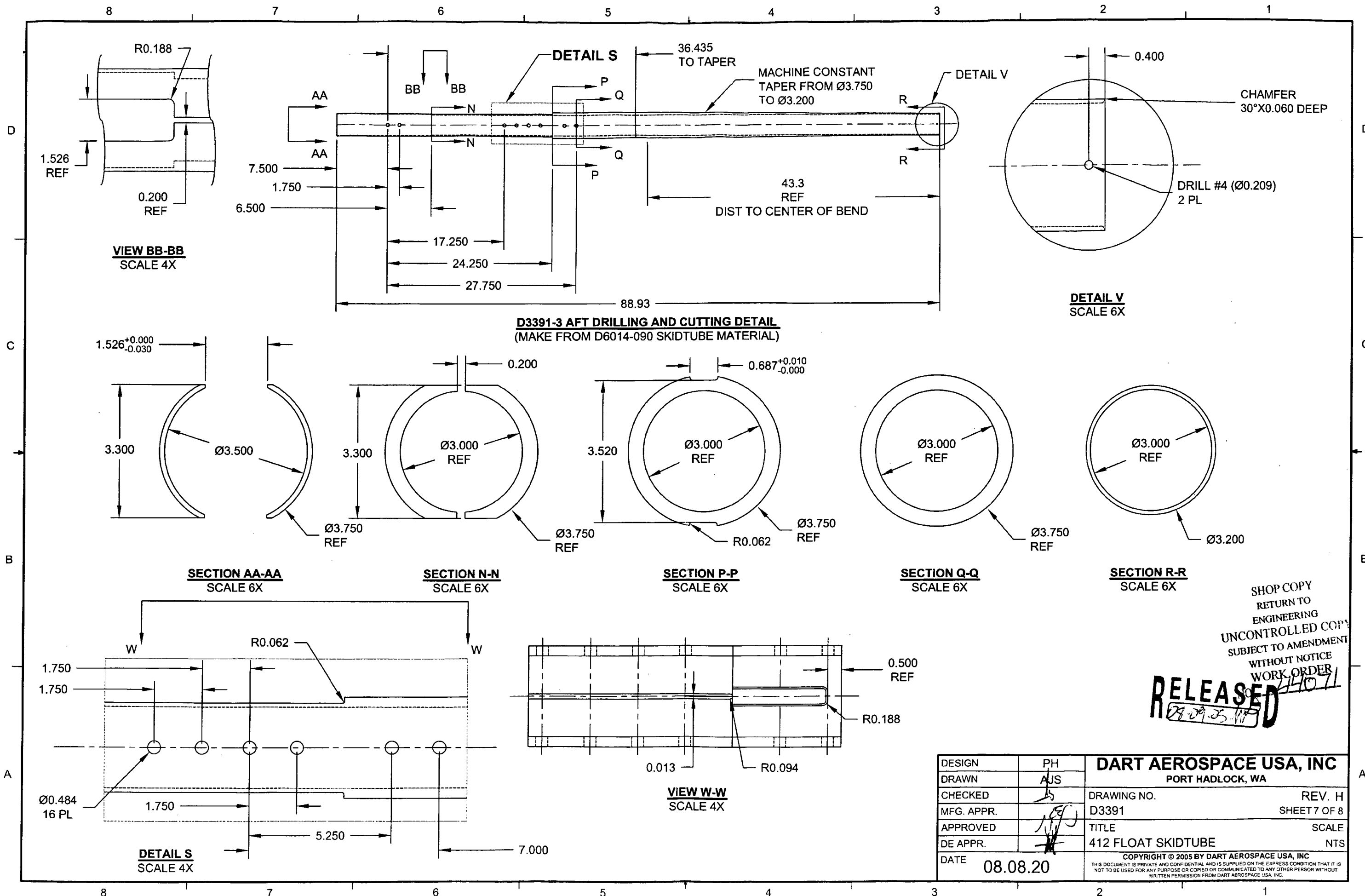
D3391-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
- 3) WELDING: PER DART QSI 004

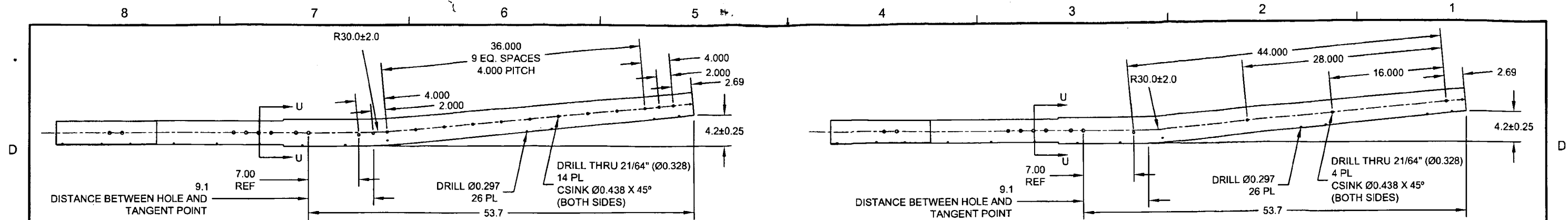
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| MFG. APPR. |  | D3391  | SHEET 6 OF 8 |
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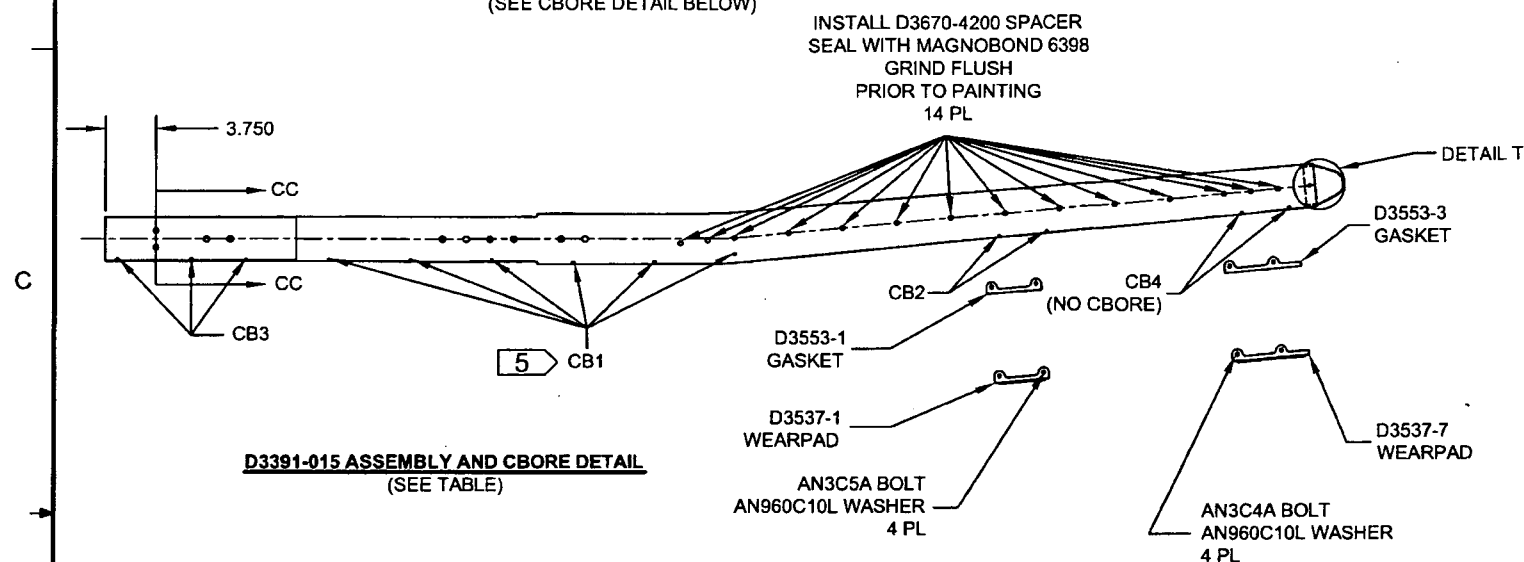


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| MFG. APPR. |          | D3391  | SHEET 7 OF 8 |
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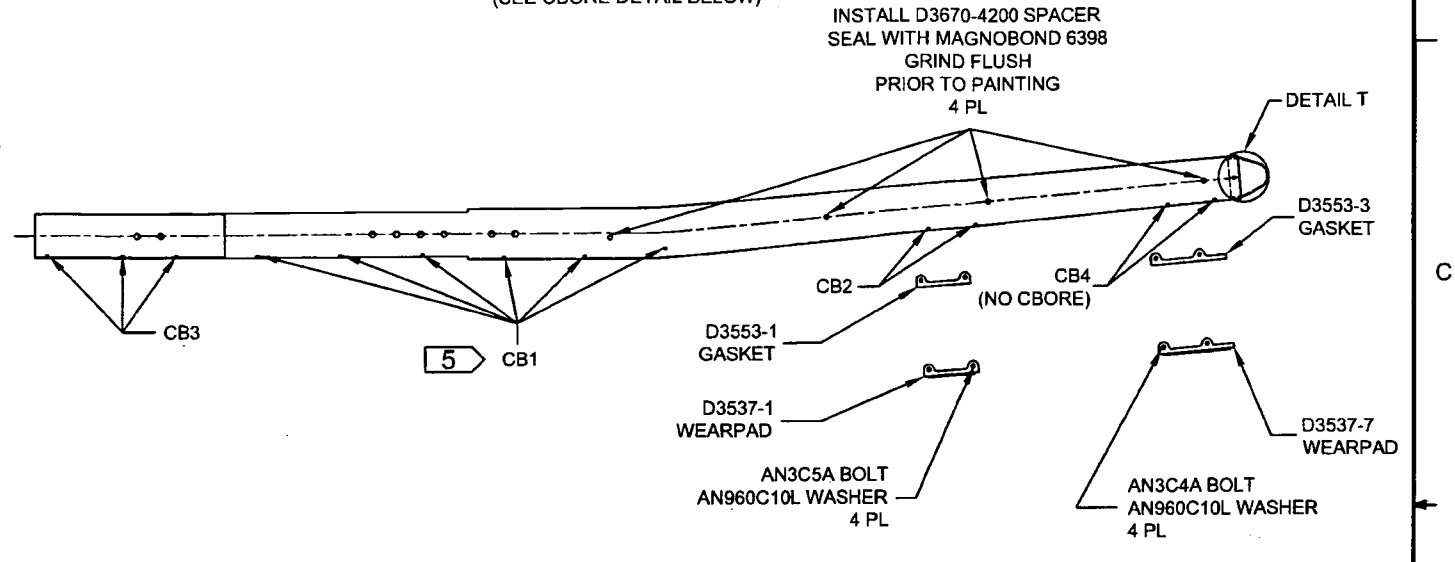


**D3391-015 BENDING AND DRILLING DETAIL**  
(SEE CBORE DETAIL BELOW)

**D3391-025 BENDING AND DRILLING DETAIL**  
(SEE CBORE DETAIL BELOW)



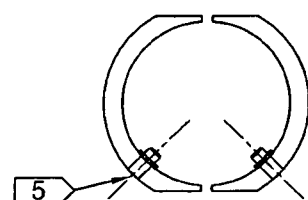
**D3391-015 ASSEMBLY AND CBORE DETAIL**  
(SEE TABLE)



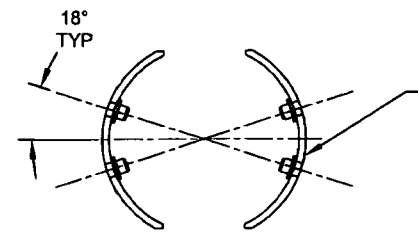
**D3391-025 ASSEMBLY AND CBORE DETAIL**  
(SEE TABLE)

**D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST**

| QTY - 015 | QTY - 025 | PART NUMBER   | DESCRIPTION       |
|-----------|-----------|---------------|-------------------|
| X         | X         | D3391-015     | AFT TUBE ASSEMBLY |
|           |           | D3391-025     | AFT TUBE ASSEMBLY |
| 1         | 1         | D6014-090     | AFT TUBE          |
| 1         | 1         | D2646         | AFT CAP           |
| 1         | 1         | D3537-1       | WEARPAD           |
| 1         | 1         | D3537-7       | WEARPAD           |
| 1         | 1         | D3553-1       | GASKET            |
| 1         | 1         | D3553-3       | GASKET            |
| 14        | 4         | D3670-4200    | SPACER            |
| 2         | 2         | D3672-1       | WASHER            |
| 14        | 14        | AELS-1032-130 | INSERT            |
| 12        | 12        | AELS-1032-225 | INSERT            |
| 4         |           | ALS4-428-165  | INSERT            |
| 6         | 6         | AN3C4A        | BOLT              |
| 4         | 4         | AN3C5A        | BOLT              |
| 10        | 10        | AN960C10L     | WASHER            |

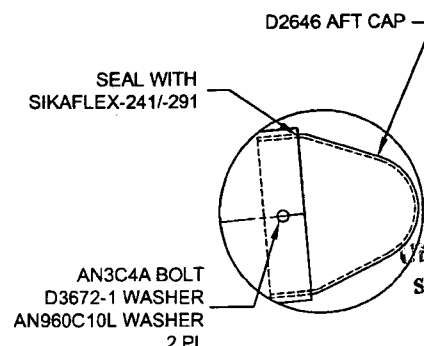


**SECTION U-U**  
SCALE 3X



**SECTION CC-CC**  
SCALE 3X

DRILL Ø0.391  
CBORE Ø0.516 X 0.040 DEEP  
INSTALL ALS4-428-165 INSERT  
4 PL



**DETAIL T**  
SCALE 4X

CBORE HOLES MARKED CB1-CB4 AS FOLLOWS AND  
INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

| HOLES MARKED | QTY D3391-015 | QTY D3391-025 | CBORE          | P/N           |
|--------------|---------------|---------------|----------------|---------------|
| CB1          | 12            | 12            | Ø0.430 X 0.170 | AELS-1032-225 |
| CB2          | 4             | 4             | Ø0.430 X 0.170 | AELS-1032-130 |
| CB3          | 6             | 6             | Ø0.430 X 0.040 | AELS-1032-130 |
| CB4          | 4             | 4             | NONE           | AELS-1032-130 |

|            |          |  |
|------------|----------|--|
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| MFG. APPR. |          | D3391 SHEET 8 OF 8   |
| APPROVED   |          | TITLE SCALE  |
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NO. 188

**AWS D17.1.2001**  
**QUALIFICATION TEST RECORD**

Name: Barclay Elliott  
Job number: 43170  
Part number: 63391023  
Description: Mid tube  
Welding Process: Tig ☒ Mig ☐  
Base materiel: Aluminium  
Current: AC ☒ DC ☐

**TEST REQUIREMENTS AND RESULTS**

Visual: pass ☒ fail ☐  
Penetration: pass ☒ fail ☐

**UNACCEPTABLE**

Cracks: pass ☒ fail ☐  
Undercut: pass ☒ fail ☐  
Pin holes: pass ☒ fail ☐  
Overlap (cold lap): pass ☒ fail ☐  
Porosity (surface): pass ☒ fail ☐  
Coloration: pass ☒ fail ☐

Qualifier Pat. Duval Date of Test Coupon 09-01-21  
Welder Barclay Elliott Date of Test Coupon 07-01-21

The above named individual is qualified in accordance with AWS D17.1.2001 to weld